

## **ABSTRACT OF THE INVENTION**

A novel process and apparatus to combinatorially screen a large number of discrete compositions for electrocatalytic activity have been developed. The apparatus contains a cell body adjacent to a fluid permeable catalyst array support supporting multiple solids. A catalyst mask having holes that are in alignment with the multiple locations for supporting solids is placed over the catalyst array support, masking the solids. A cell cover is positioned adjacent to the catalyst array support, with the cell cover having a passage for monitoring the solids through the mask. A detector may be in alignment with the passage of the cell cover.